

Dawson and Luverne, Minn.; Bassett and Palmer, Nebr.; Flandreau, S. Dak.

16th, Audubon, Galva, Glenwood, and Larrabee, Iowa; Beardsley, Bird Island, Fergus Falls, Milan, and Saint Peter, Minn.; Beatrice, Creighton, Geneva, Indianola, Ravenna, Sutton, Tecumseh, Tekamah, and Wilcox, Nebr.; Ashley, Berlin, Bismarck, Forman, Jamestown, and Wild Rice, N. Dak.; Forestburg, Huron, and Yankton, S. Dak. 17th, Boon, Evart, Lathrop, and Stanton, Mich.; Milton, N. Dak.; Belleville, Cadiz, Columbus, Hillsboro, and Oconto, Wis. 18th, Havre, Mont.; Culbertson, Nebr.; Oakdale, N. Dak.; Baker City, Joseph, and Vale, Oregon. 19th, Hinckley, Mich.; Sauk Center, Minn.; Miles City, Mont.; Bear Valley, Faulkton, Fort Stevenson, Frankfort, Minto, Washburn, and Williamsport, N. Dak. 20th, Orono, Me.; Waterville, Wash. 21st, Pleasanton, Cal.; Brush and Longmont, Colo.; Royalston, Mass.; Ada, Minn.; Monitors Ranch and Reno, Nev.; Malone, N. Y.; Qelrichs, S. Dak.; Levan, Salt Lake City, and Snowville, Utah; Moxee, Wash.; Koepenick, Wis.

22d, Julesburg, Colo.; Carver, Saint Cloud, and Sandy Lake Dam, Minn.; Gering, Hay Springs, and North Platte, Nebr.; Wolsey, S. Dak.; Deseret, Utah; Centerville and Pomeroy, Wash. 23d, Loveland, Smoky Hill Mine, and Thon, Colo.; Flint and Lewiston, Mich.; Farmington and Park Rapids, Minn.; Pickering, Mo.; Glendive and Helena, Mont.; Agee, Cornlea, Kennedy, and Valentine, Nebr.; Dickinson, Dunseith, Fort Buford, and Larimore, N. Dak.; Midland, S. Dak.; Rosalia, Wash.; Pepin and Sharon, Wis.; Sheridan, Sundance, and Wheatland, Wyo. 24th, Hugo (near), Kirk, Sunnyside, and Wallet, Colo.; Osage and Tipton, Iowa; Lansing, Mio, and Sault Ste Marie, Mich.; Bingham Lake and Saint Olaf, Miun.; Ansley, Nesbit, Omaha, and Plattsburgh, Nebr.; Leipsic, Ohio; Hotch City, S. Dak.; Baraboo, Beloit, Delavan, Eau Claire, Fond du Lac, Green Bay, Harvey, Juneau, Oconomowoc, Prairie du Chien, Sparta, Viroqua, Watertown, and Westfield, Wis.

25th, Avoca, Cope, Le Roy, Seibert, and Stamford, Colo.; Bloomington, Rantoul, Riley, Streator, and Winnebago, Ill.; Mauzy and Shelbyville, Ind.; Algona, Alta, Ames, Belle Plaine, Carroll, Cedar Rapids, Centerville, Charles City, Clarinda, College Springs, Corning, Cresco, Delaware, Des Moines, Grand Meadow, Greenfield, Grinnell, Grundy Center, Hampton, Hopeville, Indianola, Iowa Falls, Le Claire, Mason City, Maxon, Mechanicsville, Monticello, Oskaloosa, Seymour, Sioux City, Storm Lake, Webster City, and Williams, Iowa; Downs, Eureka Ranch, Lebo, and Mankato, Kans.; Albert Lea, Alexandria, Blooming Prairie, Bonniwells Mills, Clear Lake, Duluth, Grand Meadow, Granite Falls, Maple Plain, Minneapolis, Montevideo, Morris, Saint Paul, Waconia, Wadena, and Winona, Minn.; Akron, Fairport, Platte River, and Princeton, Mo.; Arborville, Ashland, Columbus, David City, Genoa, Glenwood, Hartington, Kearney, Lexington, Madrid,

Marquette, Minden, O'Neill, Santee Agency, and Syracuse, Nebr.; Cardington, Dupont, Frankfort, and Springboro, Ohio; Brookings, Gary, Howard, Kimball, Pierre, Rapid City, Sioux Falls, and Wessington Springs, S. Dak.; Beaver Dam, La Crosse, Lincoln, and Milwaukee (near), Wis.

26th, Aurora, Carlinville, Hennepin, Mount Pulaski, Osgo, Ottawa, Rushville, Springfield (near), and Walnut, Ill.; Angola, Columbia City, Columbus, Delphi, Farmland, Hawpatch, Indianapolis, Kokomo, Lafayette, and Markle, Ind.; Amana, Clinton, Elkader, Keokuk, Keosauqua, Mount Pleasant, and Muscatine, Iowa; Easton, Me.; Alma, Ann Arbor, Bellaire, Berlin, Bronson, Brown City, Clinton, Detroit, Escanaba, Grand Haven, Grape, Hanover, Hart, Madison, Mayville, Mottville, North Marshall, Ovid, Port Huron, Rawsonville, Thornville, and Ypsilanti, Mich.; Caledonia, Cambridge, and Long Prairie, Minn.; Grovedale, Ironton, and Potosi, Mo.; Table Rock, Nebr.; Bethlehem and Lancaster, N. H.; Angelica, Arcade, Friendship, Gloversville, South Canisteo, and Varysburg, N. Y.; Fort Yates, N. Dak.; Akron, Auburn, Bement, Benton Ridge, Binola, Bloomington, Bowling Green, Bucyrus, Caledonia, Celina, Ellsworth, Findley, Fostoria, Garrettsville, Green Hill, Greenville, Hedges, Hiram, Kenton, Kilbourne, Lewisburg, Millport, Napoleon, Northwood, Plattsburg, Ridgeville Corners, Rittman, Sylvania, Tiffin, Upper Sandusky, Van Wert, Vickery, Vermillion, Warren, Wauseon, Wellington, and Weymouth, Ohio; Lone Rock, Oregon; Lancaster, Raymond, and Waukesha, Wis.

27th, Akron, Colo.; Dubuque, Logan, and Vinton, Iowa; Cornish, Lewiston, and Mayfield, Me.; Adams, East Templeton, and Winchendon, Mass.; Leech Lake and Wabasha, Minn.; Calloway, Ericson, and Lynch, Nebr.; Alstead, N. H.; Dover, N. J.; Brookfield, Lebanon Springs, and Lowville, N. Y.; Annapolis, Levering, and Milligan, Ohio; Dyberry, State College, and Wellsboro, Pa.; Jacksonville, Vt.; Central Station, W. Va. 28th, Benton Harbor and Vandalia, Mich.; Belle Plaine, Minnesota City, and Pine River, Minn.; Boonton and Somerville, N. J.; Cambridge and Wooster, Ohio; Depere, Manitowoc, and Menomonie, Wis.

29th, Delta, Colo.; Panama, Iowa; Bettcherville and Oakland, Md.; Marquette and Parkville, Mich.; South Kortright and Palermo, N. Y.; Bangorville, Big Prairie, Bissells, Bladensburg, Canton, Canal Dover, Carrollton, Cherry Fork, Chicago Junction, Colton, Columbus, Demos, Gratiot, Guyville, Killbuck, Lordstown, Lowell, Mountville, Nelsonville, New Berlin, New Holland, Pataskala, Wooster, and Youngstown, Ohio; Pittsburg, Pa.; Hot Springs, Va.; Bluefield, Buckhannon, Grafton, Kingwood, Parkersburg, Spencer, and Tannery, W. Va. 30th, Lavender, Surface Creek, and T. S. Ranch, Colo.; Falls Village, Conn.; Berlin Mills, N. H.; Rancocas, N. J.; Eden Center, Fleming, Hess Road Station, Rochester, and Turin, N. Y.; Williams, Oregon; Aqueduct and Kilmer, Pa.; Petersburg, Va.

#### PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for September, 1893, as determined by reports from more than 2,000 stations, is exhibited on Chart III. In the table of climatological data the total precipitation and the departure from the normal are given for regular stations of the Weather Bureau; the figures in that table set opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal adopted for any station or district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

The normal precipitation for September is usually small throughout the United States, and the maximum is from 4 to 6 inches in the south Atlantic and Gulf states, and about the same on the coasts of Washington and Oregon.

The precipitation for September, 1893, was unusually heavy in southeastern Louisiana and southwestern Alabama, where from 8 to 12 inches were reported; heavy precipitation was also reported (from 8 to 16 inches) along the axis of the Appalachian range from southwestern Virginia to northern Georgia. Less than 2 inches fell over the greater part of Michigan, Minnesota, Iowa, Kansas, and Nebraska, and an inch or less at most stations in Colorado, Wyoming, Arizona,

California, and Nevada. In the last two states many stations report no rainfall.

#### DEPARTURES FROM NORMAL PRECIPITATION.

Rainfall was in excess of the normal in northern California, Oregon, and Washington from 1 to 3 inches; in southern Alabama, 6 inches. It was deficient over the greater portion of the Lake region by from 1 to 4 inches.

Considered by districts the monthly precipitation averaged about normal in the Ohio Valley and Tennessee. In the middle Atlantic states it was 105 per cent of the normal; in the eastern Gulf states, 109; northern slope of the Rocky Mountains, 110; southern slope, 113; north Pacific coast, 112; southern plateau, 132; middle plateau, 148; middle Pacific coast, 246; northern plateau, 258. In districts where the precipitation was deficient the percentage of the normal was about as follows: Key West, 32; western Gulf states, 38; extreme northwest, 50; lower lake region, 51; upper lake region, 61; New England, 68; middle slope, 72; upper Mississippi valley, 86; south Atlantic states, 89; Missouri Valley, 93.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for September for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for September, 1893; (4) the departure of the current month from the average; (5) and the extremes for September during the period of observation and the years of occurrence:

State and station.	(1) Average for the month of Sept.	(2) Length of record.	(3) Total for Sept., 1893.	(4) Departure from average.	(5) Extremes for September.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
Arizona.	Inches.	Years	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Fort Apache .....	1.51	17	2.65	+ 1.14	5.41	1881	0.30	1880
Fort Mohave .....	0.06	20	0.00	- 0.06	0.42	1883	0.00	*
Whipple Barracks .....	1.13	22	0.57	- 0.56	4.88	1887	0.00	1874
Arkansas.								
Keesees Ferry.....	4.28	12	4.03	- 0.25	12.08	1890	0.33	1891
California.								
Fort Bidwell .....	0.37	22	.....	.....	1.60	1890	0.00	*
Riverside .....	0.08	13	0.31	+ 0.23	0.71	1890	0.00	*
Colorado.								
Las Animas .....	0.51	11	0.08	- 0.43	1.35	1883	0.00	1890
Florida.								
Merritts Island .....	8.11	15	4.77	- 3.34	23.78	1878	2.88	1883
Georgia.								
Forsyth .....	3.47	19	2.71	- 0.76	8.69	1888	0.10	1886
Idaho.								
Boise Barracks .....	0.36	20	2.26	+ 1.90	2.26	1893	T.	1886
Fort Sherman .....	0.99	9	2.50	+ 1.51	2.50	1893	0.08	1882
Indiana.								
Lafayette .....	2.27	11	2.74	+ 0.47	4.64	1885	0.30	1882
Indian Territory.								
Fort Supply .....	2.02	12	2.72	+ 0.70	4.23	1873	0.20	1886
Iowa.								
Cresco .....	3.81	20	2.08	- 1.73	10.03	1880	0.82	1888
Kansas.								
Independence .....	3.49	21	2.17	- 1.32	9.71	1884	0.27	1883
Salina .....	1.81	11	.....	.....	3.75	1891	0.50	1888
Louisiana.								
Grand Coteau .....	3.20	9	3.82	+ 0.62	10.58	1885	0.37	1888
Maine.								
Orono .....	3.44	22	6.02	+ 2.58	6.97	1888	0.95	1887
Maryland.								
Cumberland .....	2.91	22	1.97	- 0.94	8.50	1882	0.40	1873
Michigan.								
Kalamazoo .....	3.22	17	3.47	+ 0.25	6.28	1879	0.53	1882
Missouri.								
Sedalia .....	4.70	12	1.76	- 2.94	10.54	1884	0.68	1891
Montana.								
Fort Custer .....	0.78	14	0.60	- 0.18	1.72	1890	0.03	1879
Nebraska.								
Fort Robinson .....	0.50	9	0.14	- 0.36	1.52	1891	0.00	1890
Genos (near) .....	3.01	17	2.13	- 0.88	11.34	1887	0.29	1888
Nevada.								
Browns .....	0.09	22	.....	.....	0.87	1891	0.00	*
Carson City .....	0.26	16	0.98	+ 0.72	1.01	1890	0.00	*
New Hampshire.								
Hanover .....	2.90	22	2.38	- 0.52	6.46	1882	0.27	1884
New Mexico.								
Deming .....	1.49	11	2.64	+ 1.15	4.36	1886	0.08	1892
Fort Wingate .....	1.23	21	1.50	+ 0.27	3.60	1873	0.04	1892
New York.								
Cooperstown .....	3.34	22	4.03	+ 0.60	7.24	1890	1.17	1871
Plattsburg Barracks .....	2.60	22	2.12	- 0.48	4.72	1883	0.51	1887
North Carolina.								
Lenoir .....	4.22	21	9.00	+ 4.78	9.00	1893	0.40	1871

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## Departures from average precipitation—Continued.

State and station.	(1) Average for the month of Sept.	(2) Length of record.	(3) Total for Sept., 1893.	(4) Departure from average.	(5) Extremes for September.			
					(1) Average for the month of Sept.	(2) Length of record.	(3) Total for Sept., 1893.	(4) Departure from average.
					Am't.	Year.	Am't.	Year.
Oklahoma.	Inches.	Years	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Fort Reno .....	2.94	10	1.17	- 1.77	5.13	1887	1.17	1891, 1893
Fort Sill .....	2.67	22	3.65	+ 0.98	5.60	1874	0.28	1879
Oregon.								
Bandon .....	1.83	15	6.01	+ 4.18	6.01	1893	0.00	1890
Pennsylvania.								
Dyberry .....	2.80	21	3.58	+ 0.78	6.49	1888	1.04	1885
Grampian .....	3.25	16	3.21	- 0.04	5.87	1890	1.14	1885
Wellsboro .....	3.29	14	2.03	- 1.26	8.40	1890	1.18	1892
South Carolina.								
Statesburg .....	3.49	12	2.81	- 0.68	6.67	1884	0.75	1887
South Dakota.								
Fort Sully .....	0.93	22	T.	- 0.93	4.09	1876	T.	1871, 1893
Texas.								
Austin .....	4.52	20	2.02	- 2.50	12.33	1886	0.00	1872
Silver Falls .....	2.00	7	3.80	+ 1.80	5.58	1886	0.27	1888
Utah.								
Terrace .....	0.25	20	0.15	- 0.10	1.61	1884	0.00	*
Vermont.								
Strafford .....	3.47	20	1.58	- 1.89	6.30	1880	0.70	1884
Virginia.								
Dale Enterprise .....	4.10	13	5.45	+ 1.35	12.24	1882	1.04	1885
Washington.								
Fort Townsend .....	1.24	18	0.88	- 0.36	5.79	1874	0.15	1890
West Virginia.								
Parkersburg .....	3.50	8	2.64	- 0.86	8.41	1890	1.72	1891
Wisconsin.								
Madison .....	3.19	21	2.67	- 0.52	8.17	1881	0.38	1891
Wyoming.								
Fort Washakie .....	0.33	II	0.12	- 0.21	0.92	1891	0.00	1892

\*Generally.

† Frequently.

## PRECIPITATION, JANUARY TO SEPTEMBER.

For the period January to September, 1893, inclusive, the total precipitation was in excess over the southern plateau, middle plateau, northern plateau, and north Pacific coast regions by about 20 per cent of its normal value. Over the rest of the United States the total precipitation was deficient.

In districts where the precipitation was in excess, the average percentage of the normal was as follows: southern plateau, 122; middle plateau, 113; northern plateau, 123; north Pacific coast, 118.

In districts where the precipitation was deficient the percentage of the normal was as follows: New England, 95; middle Atlantic states, 96; south Atlantic states, 94; Key West, 54; east Gulf states, 82; west Gulf states, 74; Ohio Valley and Tennessee, 98; lower lake region, 92; upper lake region, 88; extreme northwest, 94; upper Mississippi valley, 93; Missouri Valley, 93; northern slope, 75; middle slope, 64; southern slope, 81; middle Pacific coast, 93; southern Pacific coast, 82.

## YEARS OF GREATEST PRECIPITATION FOR SEPTEMBER.

The precipitation for the current month was the largest on record for September at Cairo, Ill., being 6.83, whereas the highest preceding was 5.02 in 1884; at Walla Walla, Wash., 2.60 as compared with 1.55 in 1887; at Roseburg, Oregon, 3.80 as compared with 1.40 in 1877.

## YEARS OF LEAST PRECIPITATION FOR SEPTEMBER.

The precipitation for the current month was the least ever reported for September at Erie, Pa.; Cleveland, Ohio; La Crosse, Wis.; Duluth, Minn.; Escanaba, Mich.; Valentine, Nebr.; Shreveport, La.; and San Antonio, Tex. The years of no rainfall at San Diego, Cal., in September have been 1872, 1873, 1877, 1878, 1879, 1880, 1883, 1886, and 1893.

## EXCESSIVE PRECIPITATION.

The following tables show, by states, the number of stations reporting monthly precipitation to equal or exceed 10.00; precipitation to equal or exceed 2.50 in 24 hours; and precipitation to equal or exceed 1.00 in 1 hour in September, 1893:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
North Carolina .....	6	South Carolina .....	2
Louisiana .....	5	Alabama .....	1
Florida .....	3	Mississippi .....	1

Precipitation to equal or exceed 2.50 in 24 hours.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Mississippi .....	22	7, 7-8, 8, 8-9, 9, 11, 25.	Alabama .....	6	7-8, 8, 8-9, 10-11.
Louisiana .....	20	6-7, 6-8, 7, 7-8.	Tennessee .....	6	8, 8-9, 9.
Missouri .....	19	22, 22-23, 24, 28-29, 29, 30.	Indian Territory .....	4	22-24, 23-24.
North Carolina .....	16	* 1, 8-9, 9-10, 10, 10, 11, 11, 11-12, 11-13, 12, 12, 13-14.	Nebraska .....	4	28-29.
Arkansas .....	12	8-9, 9-10, 23-24, 24, 29, 29-30, 30.	Texas .....	4	25, 25.
Georgia .....	12	1, 7, 7-8, 8-9, 9-10, 10-11.	Illinois .....	3	9, 21, 30.
Florida .....	11	1-2, 2, 7, 8-9, 10-11, 12, 26-27.	Indiana .....	3	22-23, 30.
South Carolina .....	8	* 1, 8-9, 11-12, 13.	New York .....	3	7, 8, 15-16.
Kansas .....	7	22, 23-24, 28, 28-29.	Pennsylvania .....	3	15.
Virginia .....	7	1-2, 10-11, 11-12, 13, 13-14.	Wisconsin .....	3	21, 29-30.
			Iowa .....	2	20-21, 29.
			Maine .....	2	15-16, 16.
			New Jersey .....	2	15, 15-16.
			Kentucky .....	1	9.
			New Mexico .....	1	28.

\* August 31-September 1.

Precipitation to equal or exceed 1.00 in 1 hour.

Florida .....	10	2, 7, 8, 10, 12, 13, 15, 26-27.	Arizona .....	1	1.
New York .....	3	7, 15.	Indian Territory .....	1	24.
Georgia .....	2	9, 13.	Louisiana .....	1	25.
Mississippi .....	2	6, 13.	North Carolina .....	1	11.
Missouri .....	2	22.	Ohio .....	1	13.
Pennsylvania .....	2	7, 15.	Texas .....	1	5.
Virginia .....	2	10, 15.	Washington .....	1	19.
Alabama .....	1	12.	West Virginia .....	1	22.

Table of excessive precipitation, September, 1898.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Time.
<b>Alabama.</b>					
Citronelle .....	Inches.	Inches.		Inches.	h. m.
Eufaulac .....	3.26	8			
Livingston b .....	2.73	8			
Mobile .....	4.06	8-9			
Do .....	11.53	5-10			
Newton .....	3.12	10-11			
Thomasville .....	3.00	8			
<b>Arizona.</b>					
Signal .....				1.01	0 50
<b>Arkansas.</b>					
Bee Branch .....	3.75	30			
Conway .....	2.93	29-30			
Dardanelle .....	3.80	23-24			
Forrest .....	4.00	8-9			
Fort Smith .....	2.50	23-24			
Heilona a .....	3.75	9-10			
Keeses Ferry .....	2.75	30			
Marcella .....	3.68	30			
Marshall .....	4.70	29			
Ozark .....	2.51	24			
Do .....	2.50	30			
Winslow .....	2.85	29-30			
<b>Florida.</b>					
Archer .....	12.49	3-78	2		
Bristol .....	5.54	7			
Brooksville .....	10.20		1.12	0 40	13
Federal Point .....		2.99	12	2.99	1 30
Gainesville .....				2.10	1 10
Do .....				1.00	1 00
Homeland .....		2.72	2		
Jupiter .....				1.25	0 58
Manatee .....	10.32				15
Myers .....		3.00	2		
New Smyrna .....		4.20	26-27	4.20	3 30
Ocala .....		4.56	2		
Orlando .....				1.67	0 30
Plant City .....				1.32	0 45
Do .....				2.32	1 00
Saint Petersburg .....		2.66	1-2		
Do .....		2.64	8-9		
Do .....		3.75	10-11		

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Time.
<b>Florida—Continued.</b>					
Tampa .....	Inches.	Inches.			
Titusville .....	2.55	1-2		1.25	1 12
<b>Georgia.</b>					
Alapaha .....		2.68	7-8		
Athens a .....		2.60	1		
Athens b .....		2.77	1		
Bainbridge b .....		2.62	7-8		
Camak .....		2.72	9-10		
Dahlonega .....		3.03	8-9		
Do .....		3.75	10-11		
Hephzibah .....		2.60	1		
Quitman .....		3.50	7-8		
Savannah .....		4.35	8-9	1.00	1 00
Do .....				1.00	1 00
Thomasville .....		3.51	7		
Toccoa .....		2.90	9-10		
<b>Illinois.</b>					
Cairo .....		2.70	9		
Mascoutah .....		3.10	30		
Riley .....		2.74	21		
<b>Indiana.</b>					
Huntingburg .....		3.75	30		
Muncie .....		2.50	22-23		
Seymour .....		4.50	30		
<b>Indian Territory.</b>					
Eufaula .....		4.00	22-24		
Lehigh .....		3.00	23-24		
Purcell .....		6.02	23-24	3.30	1 00
South McAlester .....		5.98	23-24		
<b>Iowa.</b>					
Bonaparte .....		2.86	20-21		
Tipton .....		2.51	29		
<b>Kansas.</b>					
Columbus .....		3.59	22		
Englewood .....		2.78	28		
Grove City .....		2.78	28-29		
Horton .....		3.12	28-29		
Marmaton .....		2.95	23-24		
Topeka (V. O.) .....		3.22	28-29		
Wamego .....		2.50	28-29		
<b>Kentucky.</b>					
Wickliffe .....		2.68	9		
<b>Louisiana.</b>					
Abbeville .....		3.50	7		
Amite .....		6.15	6-8		
Baton Rouge .....		4.21	6-7		
Cameron .....				1.21	0 30
Clinton .....		3.55	7		
Covington .....		6.09	6-8		
Donaldsonville .....		9.84	7-8		
Emilie .....		8.00	6-7		
Franklin .....		14.01	12-30		
Grand Coteau .....		3.42	6-7		
Hannmond .....		6.74	7-8		
Jeanerette .....		8.32	6-7		
Lafayette .....		2.80	6-7		
New Iberia .....		5.00	7		
Paincourtville .....		10.50	6-8		
Plaquemine .....		6.75	7-8		
Roseland .....		5.15	7-8		
Schriever .....		2.60	7		
Thibodeaux .....		2.57	7		
Wallace .....		12.59	9-29		
West End .....		3.70	6-7		
<b>Maine.</b>					
Mattawamkeag .....		2.50	16		
Orono .....		3.22	15-16		
<b>Mississippi.</b>					
Aberdeen .....		3.20	8-9		
Do .....		3.10	25		
Agricultural College .....		3.50	8		
Batesville .....		4.30	8-9		
Biloxi .....		4.81	7		
Columbus a .....		2.82	8-9		
Columbus b .....		2.88	8-9		
Duck Hill .....		3.78	8-9		
Fayette .....		4.73	8-9		
French Camp .....		2.80	8		
Hattiesburg .....		2.94	9		
Holly Springs .....		3.50	9-9		
Lake .....		3.35	7		
Logtown .....		4.65	8-9		
Louisville .....		3.75	8-9		
Macon .....		3.42	8-9		
Meridian .....		2.75	11		
Moss Point .....		2.55	8-9		
Okolona .....		5.70	25		
Do .....		6.50	7-8		
Port Gibson .....		4.22	9		
Topton .....		3.43	7-8		
Water Valley .....					
Waynesboro b .....					
<b>Missouri.</b>					
Cahool .....		5.20	22		
Carthage .....		4.24	22		
Dixon .....		2.50	24		
Gallatin .....		3.01	29		
Gayoso .....		3.00	30		
Houston .....		3.93	22-23		
Kidder .....		2.71	29		

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<b>Missouri—Continued.</b>						
Mount Vernon.	5.22	22				
Oregon a.	2.63	28-29				
Oregon b.	2.50	28-29	1.03	0 45	22	
Osceola.	2.83	24				
Phillipsburg.	2.51	29				
Pickering.	2.61	22				
Do.	2.73	28-29				
Platte River.	2.66	29				
Round Spring.	3.06	22-23				
Sarcocie.	3.05	22-23				
Springfield.	3.90	22-23	1.18	0 50	22	
Vandalia.	3.00	24				
<i>Nebraska</i>						
Beatrice.	2.64	28-29				
Harvard.	2.49	28-29				
Sutton.	3.29	28-29				
Table Rock.	2.77	28-29				
<i>New Jersey</i>						
Camden.	2.56	15				
Cape May C. H.	3.38	15-16				
<i>New Mexico</i>						
La Luz.	2.87	28				
<i>North Carolina</i>						
Alfred Center.	2.60	8				
Elmira.	3.21	15-16	1.55	1 05	7	
Factoryville.	2.25	2-25	2 10		15	
Friendship.			1.50	0 40	7	
Le Roy.	2.95	7				
<i>Pennsylvania</i>						
Asheville.	3.57	10-11				
Blowing Rock.	10.29					
Chapel Hill.	2.73	11-12				
Charlotte.	2.03	*				
Columbus.	11.90	6-45	9			
Douglas.	10.10	4.80	13-14			
Flat Rock.	14.16	6.03	11			
Highlands.	15.11	4.05	9			
Do.	4.14	11				
Horse Cove.	15.56	3.52	8-9			
Do.	8.70	10-11	1.96	1 00	11	
Louisburg.	2.78	12				
Lynn.	3.52	9-10				
Morganton.	2.50	10				
Pittsboro.	4.55	11-13				
Rutherford College.	2.90	10				
Salisbury.	2.65	1				
<i>Ohio</i>						
Portsmouth b.			1.31	0 45	13	
Coatesville.	2.51	15	2.51	2 30	15	
Hamburg.	2.81	15				
Lebanon.	2.56	15				
Wilkesbarre.			1.53	1 15	7	
<i>South Carolina</i>						
Batesburg.	2.50	1				
Central.	13.08	6.80	8-9			
Charleston.	2.59	8-9				
Evergreen.	3.00	1				
Greenwood.			2.80	*		
Hardeeville.	12.32	6.14	8-9			
Do.	4.50	13				
Society Hill.	5.92	11-12				
<i>Tennessee</i>						
Covington a.	2.86	8				
Covington b.	2.84	8-9				
Dyersburg.	2.49	8-9				
Lynville.	2.73	9				
Memphis.	2.55	8-9				
Milan.	2.60	8-9				
<i>Texas</i>						
Albany.	3.25	25				
Amarillo.	3.35	28				
Corsicana.	2.00	25				
Longview.	4.20	25				
Round Rock.			1.35	1 00	5	
<i>Virginia</i>						
Dale Enterprise.	2.60	10-11				
Danville.	2.64	1-2				
Irwin.	3.13	11				
Lynchburg.	2.85	11-12				
Norfolk.	3.02	10-11	2.65	2 30	10	
Riverton.	3.51	13-14				
Stephens City.	3.04	13	1.66	1 00	15	
<i>West Virginia</i>						
Ferry.			1.26	1 00	19	
Spencer.			1.10	0 15	22	
<i>Wisconsin</i>						
Beaver Dam.	2.71	29-30				
Manitowoc.	2.70	21				
Raymond.	3.40	29-30				

\* August 31—September 1.

Received too late for publication in August, 1893.

Arizona.	10.66	2.78	9-10			
Chiricahua Mountains.						

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Day.
<b>Florida.</b>					
Avon Park.					
<b>New York.</b>					
Central Park, New York City.				3.61	24
Rondout.				4.00	24

## MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during September, 1893, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering gauges:

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Atlanta, Ga.	0.20	10	0.30	10	0.48	10
Baltimore, Md.	0.15	25	0.20	25	0.25	14
Bismarck, N. Dak.	*					
Boston, Mass.	0.05	16	0.10	16	0.35	16
Buffalo, N. Y.	0.20	7	0.25	7	0.35	7
Cincinnati, Ohio.	0.12	13	0.15	13	0.45	30
Chicago, Ill.†	*					
Cleveland, Ohio.	0.02	23	0.03	23	0.16	23
Denver, Colo. *	0.12	13	0.17	13	0.26	13
Detroit, Mich.	0.04	28	0.08	28	0.25	28
Dodge City, Kans.	0.03	29	0.06	29	0.25	29
Duluth, Minn.	0.03	16	0.05	16	0.16	16
Eastport, Me.	*					
Galveston, Tex.	0.15	5, 26	0.25	5, 26	0.52	5
Indianapolis, Ind.	0.22	12	0.35	12	0.57	12
Jacksonville, Fla.	0.25	7	0.41	7	0.86	7
Jupiter, Fla.	0.25	1, 15	0.50	15	1.25	15
Kansas City, Mo.	0.20	21	0.35	21	0.50	21
Key West, Fla.	0.14	8	0.22	8	0.39	11
Marquette, Mich. *	*					
Memphis, Tenn.	0.07	9, 23	0.12	9	0.53	9
Milwaukee, Wis.	0.18	21	0.30	21	0.40	21
New Orleans, La.†	*					
New York City, N. Y.	0.30	7	0.44	7	0.64	7
Norfolk, Va.	0.32	10	0.50	10	1.30	10
Olympia, Wash.	0.12	8	0.20	8	0.32	8
Omaha, Nebr.†	*					
Philadelphia, Pa.	0.20	15, 25	0.32	15	1.36	15
Portland, Oregon.	0.07	8	0.13	8	0.24	19
Rochester, N. Y.	0.08	19	0.14	19	0.25	19
Saint Louis, Mo.	0.10	22	0.13	24	0.54	24
Saint Paul, Minn.	0.22	18	0.37	18	0.69	20-21
Salt Lake City, Utah.	0.06	7	0.08	7	0.18	7-8
San Diego, Cal. *	*					
Savannah, Ga.	0.34	9	0.50	9	2.15	9
Tampa, Fla.	0.25	8	0.35	1, 8	0.65	1
Washington, D. C.	0.20	15	0.30	15	0.50	14
Wilmington, N. C.	0.12	22	0.20	22	0.34	14

\* Less than 0.05 in 1 hour.

† Self-register out of order.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several states and territories for September during the last 23 years:

Excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
Florida.	21	New Jersey.	4
Texas.	13	Pennsylvania.	4
North Carolina.	12	Missouri.	3
Georgia.	9	Washington.	3
Iowa.	8	Delaware.	2
Alabama.	7	Ohio.	2
Louisiana.	6	Michigan.	2
New Hampshire.	6	New York.	2
Mississippi.	6	Arkansas.	1
South Carolina.	6	Connecticut.	1
Kansas.	5	District of Columbia.	1
Virginia.	5	Illinois.	1
Indiana.	4	Indian Territory.	1
Massachusetts.	4	Kentucky.	1
Nebraska.	4		

*Excessive monthly precipitation—Continued.*

State.	No. years noted.	State.	No. years noted.
Maryland .....	1	West Virginia .....	0
Minnesota .....	1	The Dakotas .....	0
Oregon .....	1	New Mexico .....	0
Vermont .....	1	Idaho .....	0
Arizona .....	0	Montana .....	0
California .....	0	Nevada .....	0
Colorado .....	0	Rhode Island .....	0
Tennessee .....	0	Utah .....	0
Maine .....	0	Wyoming .....	0

*Excessive daily precipitation (24 hours).*

North Carolina .....	21	Indiana .....	0
Texas .....	20	The Dakotas .....	0
Florida .....	19	Minnesota .....	0
Georgia .....	17	Maryland .....	0
Mississippi .....	17	Massachusetts .....	0
South Carolina .....	17	Indian Territory .....	0
Kansas .....	15	New Hampshire .....	0
Virginia .....	15	District of Columbia .....	0
Illinois .....	14	Oregon .....	0
Iowa .....	14	West Virginia .....	0
Tennessee .....	14	Maine .....	0
Alabama .....	14	Washington .....	0
Missouri .....	13	Vermont .....	0
Arkansas .....	13	Arizona .....	0
Michigan .....	12	New Mexico .....	0
Louisiana .....	12	California .....	0
Ohio .....	11	Colorado .....	0
Wisconsin .....	11	Delaware .....	0
Connecticut .....	9	Montana .....	0
Pennsylvania .....	9	Rhode Island .....	0
New Jersey .....	9	Idaho .....	0
Kentucky .....	9	Nevada .....	0
Nebraska .....	9	Utah .....	0
New York .....	9	Wyoming .....	0

*Excessive hourly precipitation.*

Texas .....	17	Indiana .....	2
Florida .....	15	Minnesota .....	2
Georgia .....	12	New Hampshire .....	2
Nebraska .....	10	Wisconsin .....	2
North Carolina .....	9	The Dakotas .....	2
Illinois .....	7	District of Columbia .....	2
New York .....	7	Maine .....	2
Louisiana .....	7	Massachusetts .....	2
Kansas .....	6	New Jersey .....	2
Tennessee .....	6	Vermont .....	2
Alabama .....	6	Connecticut .....	2
South Carolina .....	5	Maryland .....	2
Pennsylvania .....	5	Washington .....	2
Arizona .....	5	California .....	2
Mississippi .....	5	Colorado .....	2
Iowa .....	4	Delaware .....	2
Michigan .....	4	Montana .....	2
Ohio .....	4	Nevada .....	2
Indian Territory .....	4	New Mexico .....	2
Virginia .....	4	Oregon .....	2
West Virginia .....	4	Rhode Island .....	2
Kentucky .....	3	Utah .....	2
Missouri .....	3	Wyoming .....	2
Arkansas .....	2		

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for September during the last 24 years:

*Monthly.*

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
Brownsville, Tex .....	Inches.		Mayport, Fla .....	Inches.	1885
Brownsville, Tex .....	30.57	1886	Mayport, Fla .....	23.24	1885
Saint Marys, Ga .....	27.41	1885	Brunswick, Ga .....	22.08	1885
Elsworth, N. C .....	26.50	1881	Homeland, Fla .....	21.15	1890
Galveston, Tex .....	26.01	1885	Jacksonville, Fla .....	21.12	1878
Paterson, N. J .....	25.98	1882	Spartanburg, S. C .....	20.44	1888
Biscayne, Fla .....	25.10	1878	Wilmington, N. C .....	20.10	1877
Saint Augustine, Fla .....	23.90	1871	Darien, Ga .....	20.05	1892
Merritts Island, Fla .....	23.78	1878			

*Daily (24 hours).*

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
Paterson, N. J .....	Inches.		Mayport, Fla .....	Inches.	1885
Elsworth, N. C .....	17.90	21-24, 1882	Luling, La .....	9.52	21, 1885
Franklin, La .....	13.00	15-16, 1881	Wallace, La .....	9.32	20-21, 1891
Genoa, Nebr .....	12.30	6-7, 1893	Merritts Island, Fla .....	9.29	7, 1893
Paincourtville, La .....	10.60	1, 1887	Horse Cove, N. C .....	9.09	9, 1878
Darien, Ga .....	10.00	6-8, 1893	Brownsville, Tex .....	8.50	21, 1887
Donaldsonville, La .....	9.87	17-19, 1892	Greenwood, S. C .....	8.35	10, 1888
	9.84	7-8, 1893			

*Excessive daily precipitation—Continued.*

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
Jeanerette, La .....	Inches.		Amite, La .....	Inches.	
Nashua, Iowa .....	8.32	6-7, 1893	Hardeeville, S. C .....	6.15	6-8, 1893
Emilie, La .....	8.00	6-7, 1893	Lonoke, Ark .....	6.14	8-9, 1893
Key West, Fla .....	7.90	21-22, 1882	Columbus, N. C .....	6.12	11, 1892
College Station, Tex .....	7.84	4, 1889	Covington, La .....	6.09	6-8, 1893
Jesup, Ga .....	7.82	27, 1885	Flat Rock, N. C .....	6.03	11, 1893
Sedan, Kans .....	7.52	10-11, 1880	Brazoria, Tex .....	6.03	24, 1891
South Fork, Ky .....	7.50	17-18, 1880	Purcell, Ind. T .....	6.02	23-24, 1893
South Orange, N. J .....	7.50	23, 1882	Huntingburg, Ind .....	6.00	13, 1892
Mt. Washington, N. H .....	7.41	15, 1880	Tyler, Tex .....	5.99	11-12, 1892
Atheville, S. C .....	7.40	10, 1888	S. McAlester, Ind. T .....	5.98	23-24, 1893
Wilmington, N. C .....	7.30	10, 1883	Society Hill, S. C .....	5.91	11-12, 1893
Wytheville, Va .....	7.02	12, 1878	Horse Cove, N. C .....	5.83	12-13, 1892
Mobile, Ala .....	7.00	16, 1877	Minden, La .....	5.72	22, 1890
Fort Hays, Kans .....	7.00	12, 1871	Okolona, Miss .....	5.70	25, 1893
Shreveport, La .....	7.00	17, 1875	Glenora, Oregon .....	5.58	22, 1892
Porthsmouth, N. C .....	7.00	13, 1884	Bristol, Tenn .....	5.54	7, 1893
Columbus, N. C .....	6.94	21-22, 1892	Midland, Tex .....	5.50	29-30, 1891
Homeland, Fla .....	6.85	1, 1890	Charleston, S. C .....	5.42	24-25, 1890
Pontotoc, Miss .....	6.82	12, 1892	Wedgewood, N. Y .....	5.34	10, 1890
Central, S. C .....	6.80	8-9, 1893	New Braunfels, Tex .....	5.27	8, 1890
Plaquemine, La .....	6.75	7-8, 1893	Mount Vernon, Mo .....	5.22	22, 1893
Hammond, La .....	6.74	7-8, 1893	Centerville, Mo .....	5.20	8-9, 1890
Greenville, Miss .....	6.68	4-5, 1892	Brewer Mine, S. C .....	5.20	13-14, 1890
Milledgeville, Ga .....	6.50	28, 1890	Millen, Ga .....	5.20	20-22, 1892
Topton, Miss .....	6.50	7-8, 1893	Hypoluxo, Fla .....	5.15	15-16, 1892
South Canisteo, N. Y .....	6.48	10, 1890	Cabool, Mo .....	5.20	22, 1893
Columbia, Tex .....	6.47	10-11, 1890	Roseland, La .....	5.15	7-8, 1893
Hot Springs, Ark .....	6.45	22-23, 1890	Mobile, Ala .....	5.01	7-8, 1893
Columbus, N. C .....	6.45	9, 1893	New Iberia, La .....	5.00	7, 1893

*One hour and less.*

Station and state.	Amount.	Date.
Demos, Ohio .....	Inches.	h. m.
Jacksonville, Fla .....	0.62	0 05
Do .....	0.54	0 05
Wilmington, N. C .....	0.47	0 05
Key West, Fla .....	0.45	0 05
Jupiter, Fla .....	0.40	0 05
Galveston, Tex .....	0.38	0 05
New York, N. Y .....	0.35	0 05
Savannah, Ga .....	0.35	0 05
Do .....	0.35	0 05
Norfolk, Va .....	0.35	0 05
Dodge City, Kans .....	0.34	0 05
Savannah, Ga .....	0.34	0 05
Norfolk, Va .....	0.32	0 05
Philadelphia, Pa .....	0.31	0 05
New York, N. Y .....	0.30	0 05
Jupiter, Fla .....	0.30	0 05
Memphis, Tenn .....	0.30	0 05
Jupiter, Fla .....	0.30	0 05
Washington, D. C .....	0.30	0 05
Cincinnati, Ohio .....	0.25	0 05
Jupiter, Fla .....	0.25	0 05
Jacksonville, Fla .....	0.25	0 05
Tampa, Fla .....	0.25	0 05
Indianapolis, Ind .....	0.25	0 05
Kansas City, Mo .....	0.25	0 05
Savannah, Ga .....	0.25	0 05
New York, N. Y .....	0.25	0 05
Kirkwood, S. C .....	0.25	0 05
Jacksonville, Fla .....	0.25	0 05
Pine Apple, Ala .....	0.24	0 05
Wilmington, N. C .....	0.24	0 05
Norfolk, Va .....	0.20	0 05
Jacksonville, Fla .....	0.20	0 05
Dodge City, Kans .....	0.18	0 05
Jupiter, Fla .....	0.18	0 05
Do .....	0.18	0 05
Norfolk, Va .....	0.15	0 05
Savannah, Ga .....	0.15	0 05
Alpena, Mich .....	0.15	0 05
Spencer, W. Va .....	0.15	0 05
Omaha, Nebr .....	0.10	0 05
Howe, Tex .....	0.10	0 05
Emilie, La .....	0.14	0 05
Fort Riley, Kans .....	0.07	0 05
Louisville, Ga .....	0.00	0 05
Franklin, Ky .....	0.00	0 05
Charleston, S. C .....	0.00	0 05
Cedar Keys, Fla .....	0.00	0 05
Orlando, Fla .....	0.00	0 05
Rio Grande City, Tex .....	0.00	0 05
Monroe, La .....	0.00	0 05
Fort Davis, Tex .....	0.00	0 05
Fort Meade, Fla .....	0.00	0 05
Purcell, Ind. T .....	0.00	0 05
Duling, La .....	0.00	0 05

*MONTLY SNOWFALL (in inches and tenths).*

The depth of snowfall for the month, as reported by regular

and voluntary observers of the Weather Bureau, is shown on Chart VI.

Monthly snowfall of 1 inch, or more, was reported as follows, and in states and territories where the maximum depth was below that amount the station reporting the greatest is given:

*California*.—Summit, 3.5. *Colorado*.—Rico, 20.1; Sunnyside, 7.5; Lavender, 5.5; Pagoda (near) and Ward District, 4; Montrose, 3.5; Steamboat Spring and Climax, 3; Breckenridge, 2. *Idaho*.—Bonanza City, 5; American Falls, 4; Lake, 3; Idaho Falls and Martin, 1. *Michigan*.—Boon and Marquette, trace. *Minnesota*.—Saint Vincent, 1. *Montana*.—Virginia City, 13; Helena, 2.1; Elk Park, 1.3. *Nevada*.—Stofiel, 3.5; Belmont, 3.4. *New Mexico*.—Chama, 1.5. *New York*.—Binghamton and Lebanon Springs, trace. *North Dakota*.—Woodbridge, 2. *Pennsylvania*.—Girardville, trace. *Rhode Island*.—Lonsdale, trace. *Utah*.—Koosharem, 1.2.

The first snow of the season was reported as follows: 2d, Rico, Colo. 6th, Belmont, Nev. 7th, on mountains near Susanville, Cal.; Downeyville, Nev. 8th, on mountains near Monitors Ranch, Nev. 11th, Virginia City, Nev. 12th, Martin, Idaho; Elk Park, Mont. 17th, Havre (near), Helena, and Fort Logan, Mont.; on hills near Spokane, Wash. 20th, Bonanza City and Lake, Idaho; Havre and Horr, Mont.; Stofiel, Nev. 21st, Hogan, Mont. 23d, Dickinson, Larimore, and Woodbridge, N. Dak. 24th, Leech Lake, Moorhead, Pokegama Falls, Rock Rapids, and Saint Vincent, Minn.; Miles City, Mont.; Bismarck, Churchs Ferry, Dunseith, Gallatin, Joslyn, Minto, Saint John, and Wild Rice, N. Dak.

25th, Marquette, Mich. 27th, Boon, Mich. 29th, Glenwood Springs and Pagoda (near), Colo.; American Falls, Idaho; Virginia City, Mont.; Tuscarora, Nev.; Binghamton and Lebanon Springs, N. Y.; Girardville, Pa.; Lonsdale, R. I. 30th, Breckenridge, Climax, Como, Gold Hill, Greeley, Lavender, Montrose, Moraine, Smoky Hill Mine, Steamboat Spring, Sunnyside, Table Rock, and Ward District, Colo.; on hills near New Hartford, Conn.; Idaho Falls, Idaho; Boulder, Mont.; Belleville, Ely, and Monitors Ranch, Nev.; Chama and Utah; 30th, Colorado.

and Monero, N. Mex.; Koosharem, Salt Lake City, and Thisle, Utah; Lander, Wyo.

#### DEPTH OF SNOW ON THE GROUND AT THE CLOSE OF MONTH.

At the close of the month the snow on the ground measured 5.5 at Lavender, Colo.; 4 at Pagoda (near), Colo.; 3 at Steamboat Spring and Sunnyside, Colo.; 1.2 at Pikes Peak, Colo.; 1 at Montrose, Colo.; 0.5 at Soldiers Summit, Nev.; and trace at Glenwood Springs, Colo.

#### HAIL.

Description of the more severe hailstorms reported for the month is given under "Local storms."

Hail was reported as follows: 1st, Arizona. 2d, Nevada. 3d, Arkansas, California, and New Mexico. 4th, Nevada. 5th, Arkansas, California, Nevada, Ohio, Pennsylvania, Texas, and Vermont. 6th, Nevada, Oregon, and Wisconsin. 7th, Connecticut, Massachusetts, Nevada, New Hampshire, New Jersey, New York, and Pennsylvania. 8th, Minnesota, Missouri, New York, Oregon, and Washington. 9th, Arizona. 10th, Illinois, North Carolina, and North Dakota. 11th, Nevada and Washington. 13th, Alabama, Indian Territory, Michigan, Minnesota, Nevada, and North Dakota. 14th, Minnesota and North Dakota.

15th, New Jersey, New York, Pennsylvania, Virginia, West Virginia, and Wisconsin. 16th, Maryland and New York. 17th, New York. 18th, Minnesota, New York, and Wisconsin. 19th, Oregon, Pennsylvania, and Washington. 20th, Maine, South Dakota, and Washington. 21st, Iowa, Nebraska, Washington, and Wisconsin. 22d, Kansas. 23d, Michigan 24th, Michigan and Texas. 25th, Delaware, Maryland, Michigan, and Virginia. 26th, Colorado, Connecticut, Nebraska, Ohio, and Texas. 27th, Arizona, Colorado, New Mexico, and Ohio. 28th, Arizona. 29th, Connecticut, Massachusetts, Nevada, New York, and Oregon. 30th, Arkansas and Nevada.

#### SLEET.

Sleet was reported as follows: 1st, Utah; 13th, Nevada; 21st, Montana; 26th, Texas; 27th, Michigan; 29th, New York and Utah; 30th, Colorado.

#### WINDS.

The prevailing winds in September 1893, namely, those that were recorded the most frequently, are shown on Chart II by arrows flying with the wind. Southeast to southwest winds have prevailed in the middle and south Atlantic states, the Southwest, the Mississippi and lower Missouri valleys. Northerly winds have prevailed from Manitoba to Alberta, and southward over Montana and Dakota. Southwesterly winds have prevailed in southern California. Variable winds in the lower lake region.

#### HIGH WINDS.

(In miles per hour.)

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows:

7th, 64, se., at Fort Canby, Wash.; 58, s., at Woods Holl, Mass.; 50, nw., at Havre, Mont. 8th, 60, se., at Fort Canby, Wash. 11th, 59, sw., at Keeler, Cal. 15th, 52, sw., at Green Bay, Wis. 20th, 84, w., at Pikes Peak, Colo. 21st, 61, s., at Marquette, Mich. 23d, 55, se., at Chicago, Ill. 29th, 60, se., at Chicago, Ill. 30th, 56, se., at Chicago, Ill.

#### LOCAL STORMS.

(75th meridian time is used at regular Weather Bureau stations.)

**2d.**—During a heavy thunderstorm at Belmont, Nev., 2 horses were killed and one person was badly injured. Heavy rain fell in San Bernardino and Riverside counties, Cal., in

the early morning. At Riverside the storm was accompanied by thunder, lightning, and heavy hail; a house was struck by lightning and inmates stunned; one of the irrigating canals broke, causing damage by flood.

**5th.**—A thunderstorm passed north of Tiffin, Ohio, in the evening; a barn was struck by lightning and burned.

**6th.**—A severe windstorm was reported at Oakley, Idaho. During a heavy thunderstorm near Monitors Ranch, Nev., 2 horses were killed by lightning. Sonoma, Cal., was visited by a heavy thunder and rain storm in the morning.

**7th.**—Heavy thunderstorms prevailed over New England and the middle Atlantic states, and destructive local storms prevailed over southeastern Louisiana. At Boston, Mass., the wind reached a maximum velocity of 44 miles per hour at 8 p. m. Only slight damage was done in Boston, but in the surrounding towns the storm was very severe and great damage was done. At Providence, R. I., the wind squall lasted but 10 minutes, but more damage was done than by any of the severe storms of August.

At Rockland, Me., the storm was very heavy, and much damage was done by lightning. At 3 p. m., a severe storm broke over Friendship, N. Y.; the clouds had a rapid whirling motion and moved southwest. At 3.15 p. m. rain and hail fell in torrents; the hailstones were the size of hickory nuts and lasted 20 minutes; much damage was done to crops. At Port Jervis, N. Y., the storm began at 5.39 p. m.; a funnel-